

ABSTRACT

A rotational speed can be reliably detected at low cost by stabilizing the density of a magnetic flux coming from a permanent magnet encoder 10b and reaching a detection portion of a sensor 29. The residual magnetic flux densities of an inner ring 1, an outer ring 14, and balls 5 each made of a magnetic material, are individually 0.2mT or less, and in total 2mT or less when assembled into a rolling bearing unit. Therefore, the magnetic flux coming from the encoder 10b is hardly affected by the residual magnetic flux of the rolling bearing unit.